



United States  
Department of  
Agriculture

Soil  
Conservation  
Service

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March 7, 1988

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Alice Fuerst  
Environmental Protection Agency  
726 Minnesota Avenue  
Kansas City, MO 66101

Dear Alice:

REMEDIATION SECTION

I thought the public meeting at Galena Wednesday, February 24 went well. I appreciated the information given at this meeting, including the Executive Summary.

Enclosed is a corrected copy of the estimated cost of vegetating reclaimed land in the Galena subsite. The bottom line is the same, but the \$150 per acre on line one should have been \$570.00. Hope this has not caused you any problem.

I am continuing to search for information on chemical analysis of the actual soil under and around these chat piles. If you have any chemical analysis of soil samples in the Galena area, it might be helpful. I have requested assistance from the Soil Conservation Service (SCS) in collecting soil samples in the Galena Subsite area. If the SCS collects these samples, could EPA either process the samples, or cover the cost of analysis for heavy metals?

I really expect the soil analysis to show an acid soil with the same heavy metals as contained in the chat piles, but until we have completed several, we will not know for sure, or at what depths they may be deposited in the soil. The heavy metals may be near the surface of the soil, or they may be dispersed throughout the soil profile. Sampling at several depths and locations will yield that type of information.

In visiting with our Soil Scientist, Dan Owen of Emporia, he feels we should start with a soil test to determine pH, nitrogen, potassium, phosphorous, and organic matter. He



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would like to pull four samples from each location to be tested, with samples divided into six inch increments. A duplicate sample would be retained for a more detailed chemical analysis if the first test indicates a need. When testing for heavy metals we would need a test for free metals as a minimum but a total metals test should also be included.

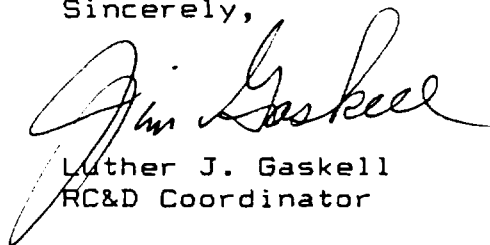
Owen and I have discussed a potential problem that did not appear to be addressed at the meeting or in the Executive Summary. This is possible heavy metal uptake by plants following reclamation. If vegetables were grown on soils having heavy metals, the plant could deposit these in the root, tuber, leaf, stem, or fruit (seed) parts of plants. Human consumption of these plants could pose possible health hazards. Florida has done considerable research on plant uptake of heavy metals since they use large volumes of sewage sludge on cultivated land as a means of waste disposal. If we find the heavy metals present in the soil, it may call for soil treatment to tie up the heavy metals, or possible restriction on the use of reclaimed soils or both.

Another question I have centers around the areas where chat piles have already been removed. Do you plan to address the stabilization of these areas in the Galena subsite? If so, soil testing should also take place on several of these sites.

I know I am raising more questions on this project, but feel we need to consider the final result, not only of how it affects the surface and ground water quality, but what effect using the reclaimed areas for domestic purposes might have. The public lands may not pose too much concern if the city maintains ownership, or limits future use, but misuse of private land could be a potential health problem.

I will be interested in your response to these ideas. If EPA can cover costs related to the Galena project, we need to work out an agreement between SCS and EPA.

Sincerely,



Luther J. Gaskell  
RC&D Coordinator

cc:

Lynn Gibson, Area Conservationist, SCS, Emporia



Corrected  
2-29-88  
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Prepared for  
Environmental Protection Agency, Kansas City, Missouri  
February 18, 1980

Estimates for establishing vegetative cover on reclaimed land and  
mine tailing areas, Gasena Subsite.

		Cost/acre
Assume land is graded and ready to prepare seed bed.		
1. Seed bed preparation, native grass seed, fertilizer, mulch, apply mulch, punch mulch into ground, including all machine and labor costs. 1/		570.00 <del>\$450.00</del>
2. Agricultural lime to neutralize acid conditions - actual pH not known - estimate up to 20,00 lbs. effective Calcium Carbonate needed per acre @ delivered and spread cost of \$8.35/1,000#ECC = 2/		\$167.00
3. Structural works to divert runoff water from seeded areas. (Diversion, grassed waterways, or other water control structures may be needed.)		\$ 88.00
4. Cost of technical assistance to develop technical plans and supervise actual seeding and mulching. 3/		\$ 5.20
- \$3.50/ac for 900 acres.		\$820.00
- \$5.20/ac for 600 acres.		83.00
10% contingencies		
TOTAL		\$913.00

1/ Could vary substantially depending on changing costs for  
native grass seed, and whether mulch is grown as cover crop or  
applied.

2/ Based on maximum that may be needed. I find no data on soil  
acidity of soils under or around chat piles.

3/ The more acres in project, the lower the per acre cost.

